



S/N 10/602,315

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Kie Y. Ahn et al.	Examiner:	Asok K Sarkar
Serial No.:	10/602,315	Group Art Unit:	2829
Filed:	June 24, 2003	Docket:	1303.107US1
Title:	LANTHANIDE OXIDE / HAFNIUM OXIDE DIELECTRICS		

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

MS Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

In compliance with the duty imposed by 37 C.F.R. § 1.56, and in accordance with 37 C.F.R. §§ 1.97 *et. seq.*, the enclosed materials are brought to the attention of the Examiner for consideration in connection with the above-identified patent application. Applicants respectfully request that this Supplemental Information Disclosure Statement be entered and the documents listed on the attached Form 1449 be considered by the Examiner and made of record. Pursuant to the provisions of MPEP 609, Applicants request that a copy of the 1449 form, initialed as being considered by the Examiner, be returned to the Applicants with the next official communication.

Pursuant to 37 C.F.R. §1.97(c)(2), Applicants have included the fee of \$180.00 as set forth in 37 C.F.R. §1.17(p). Please charge any additional fees or credit any overpayment to Deposit Account No. 19-0743.

11/16/2004 AWONDAF1 00000001 10602315

01 FC:1806

180.00 OP

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

Serial No :10/602,315

Filing Date: June 24, 2003

Title: LANTHANIDE OXIDE / HAFNIUM OXIDE DIELECTRICS

Page 2

Dkt: 1303.107US1

The Examiner is invited to contact the Applicants' Representative at the below-listed telephone number if there are any questions regarding this communication.

Respectfully submitted,

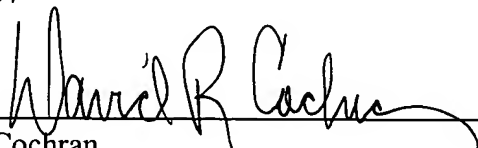
KIE Y. AHN ET AL.

By their Representatives,

SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A.
P.O. Box 2938
Minneapolis, MN 55402
(612) 371-2157

Date 12 November 2004

By


David R. Cochran
Reg. No. 46,632

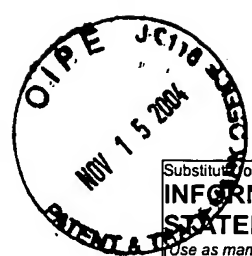
CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: MS Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this 12 day of November, 2004.

Name

KACIA LEE

Signature

Kacia Lee



Substitute for form 1449A/PTO
**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Use as many sheets as necessary)

Complete if Known

Application Number	10/602,315
Filing Date	June 24, 2003
First Named Inventor	Ahn, Kie
Group Art Unit	2829
Examiner Name	Sarkar, Asok

Sheet 1 of 4

Attorney Docket No: 1303.107US1

US PATENT DOCUMENTS

Examiner Initial *	USP Document Number	Publication Date	Name of Patentee or Applicant of cited Document	Filing Date If Appropriate
	US-2001/0009695-A1	07/26/2001	Saanila, Ville A., et al.	01/18/2001
	US-2001/0042505	11/22/2001	Vaartstra, Brian A.	07/18/2001
	US-2001/0051442-A1	12/13/2001	Katsir, Dina , et al.	06/28/2001
	US-2002/0001971	01/03/2002	Cho, Hag-ju	06/27/2001
	US-2002/0086507-A1	07/04/2002	Park, Dae G., et al.	12/26/2001
	US-2002/0086555	07/04/2002	Ahn, Kie Y., et al.	11/05/2001
	US-2002/0089023	07/11/2002	Yu, Zhiyi , et al.	01/05/2001
	US-2002/0122885	09/05/2002	Ahn, Kie Y.	03/01/2001
	US-2002/0155688	10/24/2002	Ahn, Kie Y., et al.	04/20/2001
	US-2002/0155689	10/24/2002	Ahn, Kie Y., et al.	02/11/2002
	US-2002/0192974	12/19/2002	Ahn, Kie Y., et al.	06/13/2001
	US-2003/0001241-A1	01/02/2003	Chakrabarti, Utpal K., et al.	05/28/2002
	US-2003/0042526	03/06/2003	Weimer, Ronald A.	08/29/2001
	US-2003/0048666	03/13/2003	Eldridge, Jerome M., et al.	06/21/2002
	US-2003/0052358	03/20/2003	Weimer, Ronald A.	10/25/2002
	US-2003/0119313	06/26/2003	Yang, Haining , et al.	12/05/2002
	US-2003/0175411-A1	09/18/2003	Kodas, Toivo T., et al.	10/04/2002
	US-2003/0222300	12/04/2003	Basceri, Cem , et al.	03/13/2003
	US-2003/0227033	12/11/2003	Ahn, Kie Y., et al.	06/05/2002
	US-2003/0228747	12/11/2003	Ahn, Kie Y., et al.	06/05/2002
	US-2003/0232511-A1	12/18/2003	Metzner, C. R., et al.	09/19/2002
	US-2004/0033681	02/19/2004	Ahn, Kie Y., et al.	08/15/2002
	US-2004/0033701-A1	02/19/2004	Ahn, K. Y., et al.	08/15/2002
	US-2004/0087124-A1	05/06/2004	Kubota, M. , et al.	09/16/2003
	US-2004/0099889-A1	05/27/2004	Frank, M. M., et al.	11/27/2002
	US-2004/0214399-A1	10/28/2004	Ahn, K. Y., et al.	04/22/2003
	US-4,413,022	11/01/1983	Suntola, Tuomo S., et al.	06/21/1979
	US-5,302,461	04/12/1994	Anthony, T. C.	06/05/1992
	US-6,010,969	01/04/2000	Vaarstra, Brian A.	10/02/1996
	US-6,020,024	02/01/2000	Maiti, Bikas , et al.	08/04/1997
	US-6,207,589	03/27/2001	Ma, Yanjun , et al.	02/29/2000
	US-6,217,645	04/17/2001	Vaartstra, Brian A.	09/02/1999
	US-6,225,237	05/01/2001	Vaartstra, Brian A.	09/01/1998
	US-6,273,951	08/14/2001	Vaartstra, Brian A.	06/16/1999
	US-6,297,539	10/02/2001	Ma, Yanjun , et al.	07/06/2000
	US-6,300,203	10/09/2001	Buynoski, M. S., et al.	10/05/2000
	US-6,313,035	11/06/2001	Sandhu, Gurtej S., et al.	05/31/1996
	US-6,348,386	02/19/2002	Gilmer, David C.	04/16/2001
	US-6,368,398	04/09/2002	Vaartstra, Brian A.	01/19/2001
	US-6,420,279	07/16/2002	Ono, Yoshi , et al.	06/28/2001

EXAMINER

DATE CONSIDERED

Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use as many sheets as necessary)	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="2" style="text-align: center;"><i>Complete if Known</i></td> </tr> <tr> <td style="width: 50%;">Application Number</td> <td>10/602,315</td> </tr> <tr> <td>Filing Date</td> <td>June 24, 2003</td> </tr> <tr> <td>First Named Inventor</td> <td>Ahn, Kie</td> </tr> <tr> <td>Group Art Unit</td> <td>2829</td> </tr> <tr> <td>Examiner Name</td> <td>Sarkar, Asok</td> </tr> </table>	<i>Complete if Known</i>		Application Number	10/602,315	Filing Date	June 24, 2003	First Named Inventor	Ahn, Kie	Group Art Unit	2829	Examiner Name	Sarkar, Asok
<i>Complete if Known</i>													
Application Number	10/602,315												
Filing Date	June 24, 2003												
First Named Inventor	Ahn, Kie												
Group Art Unit	2829												
Examiner Name	Sarkar, Asok												
Sheet 2 of 4	Attorney Docket No: 1303.107US1												

	US-6,451,641	09/17/2002	Halliyal, Arvind , et al.	02/27/2002
	US-6,451,695	09/17/2002	Sneh, Ofer	12/22/2000
	US-6,455,717	09/24/2002	Vaartstra, Brian A.	08/28/2000
	US-6,458,701	10/01/2002	Chae, Yun-sook , et al.	10/12/2000
	US-6,465,334	10/15/2002	Buynoski, Matthew S., et al.	10/05/2000
	US-6,482,740	11/19/2002	Soininen, Pekka J., et al.	05/15/2001
	US-6,495,436	12/17/2002	Ahn, Kie Y., et al.	02/09/2001
	US-6,514,828	02/04/2003	Ahn, Kie Y., et al.	04/20/2001
	US-6,521,911	02/18/2003	Parsons, Gregory N., et al.	07/19/2001
	US-6,527,866	03/04/2003	Matijasevic, Vladimir , et al.	02/09/2000
	US-6,531,354	03/11/2003	Maria, J. , et al.	01/17/2001
	US-6,534,420	03/18/2003	Ahn, Kie Y., et al.	07/18/2001
	US-6,537,613	03/25/2003	Senzaki, Y. , et al.	04/10/2000
	US-6,544,875	04/08/2003	Wilk, Glen D.	01/07/2000
	US-6,586,349	07/01/2003	Jeon, J. S., et al.	02/21/2002
	US-6,608,378	08/19/2003	Ahn, Kie Y., et al.	08/26/2002
	US-6,613,656	09/02/2003	Li, Weiman	02/13/2001
	US-6,627,503	09/30/2003	Ma, Y. , et al.	04/30/2002
	US-6,639,267	10/28/2003	Eldridge, Jerome M.	07/29/2002
	US-6,645,882	11/11/2003	Halliyal, Arvind , et al.	01/17/2002
	US-6,661,058	12/09/2003	Ahn, Kie Y., et al.	02/11/2002
	US-6,682,602	01/27/2004	Vaartstra, Brian A.	08/19/2002
	US-6,713,846	03/30/2004	Senzaki, Y.	01/25/2002
	US-6,730,575	05/04/2004	Eldridge, Jerome M.	08/30/2001
	US-6,750,066	06/15/2004	Cheung, F. T., et al.	04/08/2002
	US-6,762,114	07/13/2004	Chambers, J. J.	12/31/2002

FOREIGN PATENT DOCUMENTS				
Examiner Initials*	Foreign Document No	Publication Date	Name of Patentee or Applicant of cited Document	T ²
	EP-1124262	08/16/2001	Ma, Y. , et al.	
	JP-2001-332546	11/30/2001	Kazuhide, Ino	

OTHER DOCUMENTS -- NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
		AARIK, JAAN , et al., "Influence of substrate temperature on atomic layer growth and properties of HfO/sub 2/ thin films", <u>Thin Solid Films</u> , 340(1-2), (1999), 110-116	
		AARIK, JAAN , et al., "Phase transformations in hafnium dioxide thin films grown by atomic layer deposition at high temperatures", <u>Applied Surface Science</u> , 173(1-2), (March 2001), 15-21	

EXAMINER

DATE CONSIDERED

Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(Use as many sheets as necessary)</i>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="2" style="padding: 2px;">Complete if Known</td> </tr> <tr> <td style="width: 40%; padding: 2px;">Application Number</td> <td style="padding: 2px;">10/602,315</td> </tr> <tr> <td style="padding: 2px;">Filing Date</td> <td style="padding: 2px;">June 24, 2003</td> </tr> <tr> <td style="padding: 2px;">First Named Inventor</td> <td style="padding: 2px;">Ahn, Kie</td> </tr> <tr> <td style="padding: 2px;">Group Art Unit</td> <td style="padding: 2px;">2829</td> </tr> <tr> <td style="padding: 2px;">Examiner Name</td> <td style="padding: 2px;">Sarkar, Asok</td> </tr> </table>	Complete if Known		Application Number	10/602,315	Filing Date	June 24, 2003	First Named Inventor	Ahn, Kie	Group Art Unit	2829	Examiner Name	Sarkar, Asok
Complete if Known													
Application Number	10/602,315												
Filing Date	June 24, 2003												
First Named Inventor	Ahn, Kie												
Group Art Unit	2829												
Examiner Name	Sarkar, Asok												
Sheet 3 of 4	Attorney Docket No: 1303.107US1												

		AARIK, JAAN , et al., "Texture Development in nanocrystalline hafnium dioxide thin films grown by atomic layer deposition", <u>Journal of Crystal Growth</u> , 220, (2000), 105-113	
		BUNSHAH, ROINTAN F., et al., "Deposition Technologies for Films and Coatings: Developments and Applications", <u>Park Ridge, N.J., U.S.A. : Noyes Publications</u> , (1982), 102-103	
		CALLEGARI, A. , et al., "Physical and electrical characterization of Hafnium oxide and Hafnium silicate sputtered films", <u>Journal of Applied Physics</u> , 90(12), (December 15, 2001), 6466-75	
		CHENG, BAOHONG , et al., "The Impact of High-k Gate Dielectrics and Metal Gate Electrodes on Sub-100nm MOSFET's", <u>IEEE Transactions on Electron Devices</u> , 46(7), (July 1999), 1537-1544	
		CLARK, P , "IMEC Highlights Hafnium, Metal Gates for High-k Integration", <u>Semiconductor Business News</u> , at <u>Silicon Strategies.com</u> , (10/11/02), 2 pages	
		COLOMBO, D. , et al., "Anhydrous Metal Nitrates as Volatile Single Source Precursors for the CVD of Metal Oxide Films", <u>Communications, Department of EE, U of M, Mpls. MN</u> , (7/7/98), 3 pages	
		CONLEY JR., J F., et al., "Atomic Layer Deposition of Hafnium Oxide Using Anhydrous Hafnium Nitrate", <u>Electrochemical and Solid State Letters</u> , 5(5), (2002), C57-C59	
		FORSGREN, KATARINA , "Atomic Layer Deposition of HfO2 using hafnium iodide", <u>Conference held in Monterey, California</u> , (May 2001), 1 page	
		FORSGREN, KATARINA , "CVD and ALD of Group IV- and V-Oxides for Dielectric Applications", <u>Comprehensive Summaries of Uppsala Dissertation from the Faculty of Science and Technology</u> , 665, (2001)	
		GUSEV, E P., et al., "Ultrathin High-K Dielectrics Grown by Atomic Layer Deposition: A Comparative Study of ZrO2, HfO2, Y2O3 and Al2O3", <u>Electrochemical Society Proceedings Volume 2001-9</u> , (2001), 189-195	
		HUBBARD, K. J., "Thermodynamic stability of binary oxides in contact with silicon", <u>Journal of Materials Research</u> , 11(11), (November 1996), 2757-2776	
		KAWAI, Y , et al., "Ultra-low-temperature growth of high-integrity gate oxide films by low-energy ion-assisted oxidation", <u>Applied Physics Letters</u> , 64(17), (April 1994), 2223-2225	
		KWO, J. , et al., "High ϵ gate dielectrics Gd2O3 and Y2O3 for silicon", <u>Applied Physics Letters</u> , 77(1), (July 3, 2000), 130-132	
		KWO, J. , "Properties of high k gate dielectrics Gd2O3 and Y2O3 for Si", <u>Journal of Applied Physics</u> , 89(7), (2001), 3920-3927	
		LEE, S. J., et al., "Hafnium oxide gate stack prepared by in situ rapid thermal chemical vapor deposition process for advanced gate dielectrics", <u>Journal of Applied Physics</u> , 92 (5), (September 1, 2002), 2807-09	
		LEE, BYOUNG H., et al., "Ultrathin Hafnium Oxide with Low Leakage and excellent Reliability for Alternative Gate Dielectric Application", <u>IEEE Technical Digest of International Electron Devices Meeting 1999</u> , (1999), 133-136	

EXAMINER

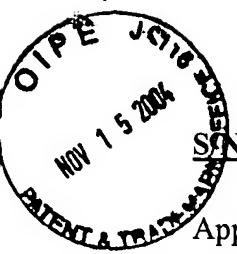
DATE CONSIDERED

Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(Use as many sheets as necessary)</i>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="2" style="text-align: center;"><i>Complete if Known</i></td> </tr> <tr> <td style="width: 40%;">Application Number</td> <td>10/602,315</td> </tr> <tr> <td>Filing Date</td> <td>June 24, 2003</td> </tr> <tr> <td>First Named Inventor</td> <td>Ahn, Kie</td> </tr> <tr> <td>Group Art Unit</td> <td>2829</td> </tr> <tr> <td>Examiner Name</td> <td>Sarkar, Asok</td> </tr> </table>	<i>Complete if Known</i>		Application Number	10/602,315	Filing Date	June 24, 2003	First Named Inventor	Ahn, Kie	Group Art Unit	2829	Examiner Name	Sarkar, Asok
<i>Complete if Known</i>													
Application Number	10/602,315												
Filing Date	June 24, 2003												
First Named Inventor	Ahn, Kie												
Group Art Unit	2829												
Examiner Name	Sarkar, Asok												
Sheet 4 of 4	Attorney Docket No: 1303.107US1												

		NIEMINEN, MINNA, et al., "Formation and stability of lanthanum oxide thin films deposited from B-diketonate precursor", <u>Applied Surface Science</u> , 174(2), (April 16, 2001), 155-165	
		OHRING, MILTON, "The Materials Science of Thin Films", <u>Boston : Academic Press</u> , (1992), 118, 121, 125	
		OSTEN, H. J., et al., "High-k gate dielectrics with ultra-low leakage current based on praseodymium oxide", <u>International Electron Devices Meeting 2000. Technical Digest. IEDM</u> , (2000), 653-656	
		PARK, BYOUNG K., et al., "Interfacial reaction between chemically vapor-deposited HfO2 thin films and a HF-cleaned Si substrate during film growth and postannealing", <u>Applied Physics Letters</u> , 80(13), (April 1, 2002), 2368-70	
		RITALA, MIKKO, "Atomic Layer Epitaxy Growth of Titanium, Zirconium and Hafnium Dioxide Thin Films", <u>Annales Academiae Scientiarum Fennicae</u> , (1994), 24-25	
		SMITH, RYAN C., et al., "Chemical Vapour Deposition of the Oxides of Titanium, Zirconium and Hafnium for Use as High-k Materials in Microelectronic Devices. A Carbon-free Precursor for the Synthesis of Hafnium Dioxide", <u>Advanced Materials for Optics and Electronics</u> , 10(3-5), (June 29, 2000), 105-14	
		WILK, G. D., "High-K gate dielectrics: Current status and materials properties considerations", <u>Journal of Applied Physics</u> , 89(10), (May 2001), 5243-5275	
		WOLF, STANLEY, et al., "Future Trends in Sputter Deposition Processes", <u>In: Silicon Processing of the VLSI Era, Vol. 1</u> , Lattice Press, (1986), 374-380	
		WOLF, STANLEY, et al., "Silicon Processing for the VLSI Era - Volume I: Process Technology", <u>Second Edition</u> , Lattice Press, Sunset Beach, California, (2000), 443	
		YAMAMOTO, K., et al., "Effect of Hf metal predeposition on the properties of sputtered HfO2/Hf stacked gate dielectrics", <u>Applied Physics Letters</u> , 81(11), (September 9, 2002), 2053-5	
		ZHANG, H., "Atomic Layer Deposition of High Dielectric Constant Nanolaminates", <u>Journal of The Electrochemical Society</u> , 148(4), (April 2001), F63-F66	
		ZHU, W., et al., "HfO2 and HfAlO for CMOS: Thermal Stability and Current Transport", <u>IEEE International Electron Device Meeting 2001</u> , (2001), 463-466	

EXAMINER

DATE CONSIDERED



SN 10/602,315

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Kie Y. Ahn et al.

Examiner: Asok K. Sarkar

Serial No.: 10/602,315

Group Art Unit: 2829

Filed: June 24, 2003

Docket: 1303.107US1

Title: LANTHANIDE OXIDE / HAFNIUM OXIDE DIELECTRICS

COMMUNICATION CONCERNING RELATED APPLICATION(S)

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Applicants would like to bring to the Examiner's attention the following related application(s) in the above-identified patent application:

<u>Serial/Patent No.</u>	<u>Filing Date</u>	<u>Attorney Docket</u>	<u>Title</u>
09/944981	August 30, 2001	1303.021US1	GATE OXIDES AND METHODS OF FORMING
09/945535	August 30, 2001	1303.026US1	HIGHLY RELIABLE AMORPHOUS HIGH-K GATE OXIDE ZrO ₂
10/052983 6767795	January 17, 2002	1303.031US1	HIGHLY RELIABLE AMORPHOUS HIGH-k GATE DIELECTRIC ZrO _x N _y
10/027315	December 20, 2001	1303.033US1	LOW-TEMPERATURE GROWN HIGH-QUALITY ULTRA-THIN PRASEODYMIUM GATE DIELECTRICS
10/081439	February 20, 2002	1303.046US1	EVAPORATED LaAlO ₃ FILMS FOR GATE DIELECTRICS
10/137168	May 2, 2002	1303.048US1	METHODS FOR ATOMIC-LAYER DEPOSITION OF ALUMINUM OXIDES IN INTEGRATED CIRCUITS
10/137499	May 2, 2002	1303.050US1	ATOMIC LAYER-DEPOSITED LaAlO ₃ FILMS FOR GATE DIELECTRICS
10/163481	June 5, 2002	1303.056US1	ATOMIC LAYER-DEPOSITED HfAlO ₃ FILMS FOR GATE DIELECTRICS

COMMUNICATION CONCERNING RELATED APPLICATIONS

Serial Number: 10/602,315

Filing Date: June 24, 2003

Title: LANTHANIDE OXIDE / HAFNIUM OXIDE DIELECTRICS

Page 2

Dkt: 1303.107US1

10/163686	June 5, 2002	1303.059US1	A METHOD INCLUDING FORMING GATE DIELECTRICS HAVING MULTIPLE LANTHANIDE OXIDE LAYERS
10/209581	July 30, 2002	1303.061US1	ATOMIC LAYER DEPOSITED NANOLAMINATES OF HfO ₂ /ZrO ₂ FILMS AS GATE DIELECTRICS
10/219870	August 15, 2002	1303.069US1	LANTHANIDE DOPED TiO _x DIELECTRIC FILMS BY PLASMA OXIDATION
10/219878 6790791	August 15, 2002	1303.070US1	LANTHANIDE DOPED TiO _x DIELECTRIC FILMS
10/229903	August 28, 2002	1303.078US1	ATOMIC LAYER DEPOSITED HfSiON DIELECTRIC FILMS
10/233309	August 29, 2002	1303.079US1	ATOMIC LAYER DEPOSITED LANTHANIDE DOPED TiO _x DIELECTRIC FILMS
10/309583	December 4, 2002	1303.082US1	ATOMIC LAYER DEPOSITED ZR-SN- TI-O FILMS USING TiH ₄
10/309935	December 4, 2002	1303.083US1	ATOMIC LAYER DEPOSITED Zr-Sn- Ti-O FILMS
10/379470	March 4, 2003	1303.090US1	ATOMIC LAYER DEPOSITED DIELECTRIC LAYERS
10/403734	March 31, 2003	1303.092US1	ATOMIC LAYER DEPOSITED ZrAl _x O _y DIELECTRIC LAYERS
10/420307	April 22, 2003	1303.097US1	ATOMIC LAYER DEPOSITED ZrTiO ₄ FILMS
10/602323	June 24, 2003	1303.101US1	LANTHANIDE OXIDE / HAFNIUM OXIDE DIELECTRIC LAYERS
09/779959	February 9, 2001		

COMMUNICATION CONCERNING RELATED APPLICATIONS

Serial Number: 10/602,315

Filing Date: June 24, 2003

Title: LANTHANIDE OXIDE / HAFNIUM OXIDE DIELECTRICS

Page 3

Dkt: 1303.107US1

09/838335	April 20, 2001		
09/881408	June 13, 2001		
09/908767	July 18, 2001		
10/765619	January 27, 2004	1303.033US2	LOW-TEMPERATURE GROWN HIGH-QUALITY ULTRA-THIN PRASEODYMIUM GATE DIELECTRICS
10/768597	January 30, 2004	1303.033US3	LOW-TEMPERATURE GROWN HIGH-QUALITY ULTRA-THIN PRASEODYMIUM GATE DIELECTRICS
10/789042	February 27, 2004	1303.050US2	ATOMIC LAYER-DEPOSITED LaAlO ₃ FILMS FOR GATE DIELECTRICS
10/789044	February 27, 2004	1303.070US2	LANTHANIDE DOPED TiO _x DIELECTRIC FILMS
10/863953	June 9, 2004	1303.031US2	HIGHLY RELIABLE AMORPHOUS HIGH-k GATE DIELECTRIC ZrO _x N _y
10/930138	August 31, 2004	1303.044US2	EVAPORATION OF Y-Si-O FILMS FOR MEDIUM-k DIELECTRICS
10/930184	August 31, 2004	1303.021US2	CRYSTALLINE OR AMORPHOUS MEDIUM-K GATE OXIDES, Y ₂ O ₃ AND Gd ₂ O ₃
10/930516	August 31, 2004	1303.078US2	ATOMIC LAYER DEPOSITED HfSiON DIELECTRIC FILMS
10/931341	August 31, 2004	1303.082US2	ATOMIC LAYER DEPOSITED ZR-SN-TI-O FILMS USING TiI ₄
10/930431	August 31, 2004	1303.056US2	ATOMIC LAYER-DEPOSITED HfAlO ₃ FILMS FOR GATE DIELECTRICS
10/931365	August 31, 2004	1303.059US2	Pr ₂ O ₃ -BASED La-oxide GATE DIELECTRICS

COMMUNICATION CONCERNING RELATED APPLICATIONS

Serial Number: 10/602,315

Filing Date: June 24, 2003

Title: LANTHANIDE OXIDE / HAFNIUM OXIDE DIELECTRICS

Page 4

Dkt: 1303.107US1

10/931364	August 31, 2004	1303.069US2	LANTHANIDE DOPED TiO _x DIELECTRIC FILMS BY PLASMA OXIDATION
10/931343	August 31, 2004	1303.101US2	LANTHANIDE OXIDE / HAFNIUM OXIDE DIELECTRIC LAYERS
10/931340	August 31, 2004	1303.107US2	LANTHANIDE OXIDE / HAFNIUM OXIDE DIELECTRICS
10/931356	August 31, 2004	1303.026US2	HIGHLY RELIABLE AMORPHOUS HIGH-K GATE OXIDE ZrO ₂

Respectfully submitted,

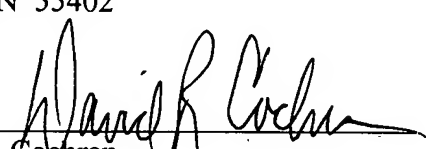
KIE Y. AHN ET AL.

By Applicants' Representatives,

SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A.
P.O. Box 2938
Minneapolis, MN 55402
(612) 371-2157

Date 12 November 2004

By


David R. Coenran
Reg. No. 46,632

CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this 12 day of November, 2004.

KACIA LEE
Name

Kacia Lee
Signature